



Vistas

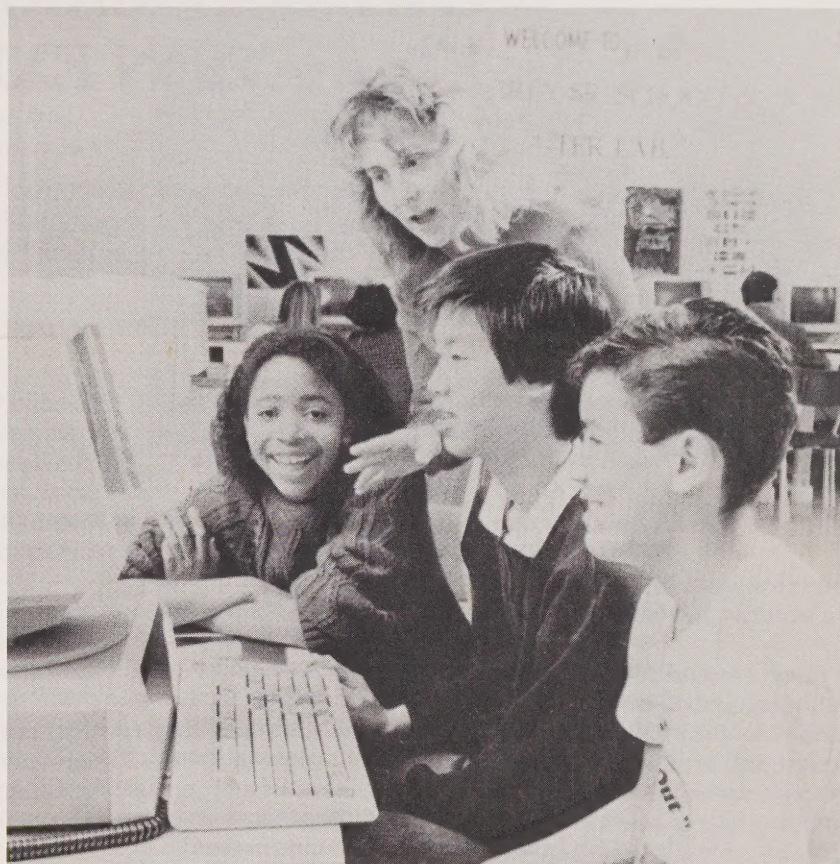
Government
Publications

MARKETING ONTARIO'S EXPERTISE ABROAD

AUTUMN 1993

Vistas welcomes new readers

This issue of *Vistas* marks the beginning of our additional distribution in *World Business* magazine, published in Ottawa. *Vistas* will also be included in January and March 1994 issues of *World Business*.



EXPORTING OUR EDUCATIONAL EXPERTISE

With the world's focus firmly fixed on education as the primary means of sustainable development, Ontario's education and training sector is poised for tremendous growth in export markets. At a recent meeting between Minister for International Trade Richard Allen and industry leaders, the consensus was clear: the opportunities for both domestic and international growth are substantial.

With the government's massive investment in one of the world's leading educational systems, the potential for public/private sector partnerships is virtually unlimited. As OIC's Jim Wessinger says, technology has made education portable, and the future is in exporting knowledge.

This special issue of *Vistas* profiles the export activities of several industry leaders in educational software, consulting services, and technology transfer. Although the people featured here work in vastly different areas of the broad "education sector", they share a common export goal, and the knowledge that they are selling a superior product.

ONTARIO MARKETS ITS EDUCATION EXPERTISE

Richard Allen, Ontario's Minister Responsible for International Trade, has taken a special interest in the opportunities presented by the export of educational products and services. *Vistas* interviewed him at Queen's Park in Toronto.

Vistas: *Ontario is obviously a major player in world trade, and its educational system enjoys a solid reputation. The question is, how do you export an educational system?*

Richard Allen: Ontario is a major trader, with approximately 40 per cent of our GDP exported out of province, and 27 per cent out of the country. The strange thing is that many people think of trade as being hard goods, tangible things like autos or furniture or clothes. The fact is that services have become a major part of world trade, and education is a major service we produce here.

The market potential for those services is huge. For example, informed sources in the U.S. believe that in the next 20 years the largest single component of their trade with China will be in education. So, it's definitely true, as a trade item, education needs to be explained to people.

Vistas: *Why the huge potential? Aren't countries handling their own educational needs?*

Richard Allen: Some of them are, but don't forget that this market also includes all aspects of training. The economy is changing dramatically with new technology, and with that comes a tremendous need to learn. There are constant demands for innovation, and the use of computer technology and telecommunications to facilitate that.

And when you look at the developing world, it's even more dramatic, because their economies are trying to leapfrog into the level of economic life that we enjoy. It requires an enormous investment in education, and that opens up opportunities for a province like Ontario, which has a respected educational system. The range is broad, and it includes everything from contracts

to build whole college systems right through to training and software programs and the conveyance of whole curricula. We don't brag about it often enough, but we have all that capability in a highly developed state right here in Ontario.

Vistas: *That brings us to the next question. How has Ontario earned its world-wide reputation in education?*

Richard Allen: Well, as you know, most education around the world is managed by government. Governments that are concerned about their own education systems are in a constant state of comparison on all levels, and they interact a lot. And once they discover our strengths, it isn't long before they began to send their students here.

Vistas: *Do we have any other advantages that put us ahead of other education and training exporters?*

Richard Allen: There's one in particular that's often overlooked. Other countries are sometimes puzzled that we in Ontario are able to absorb a large number of people with relative ease. We've used our education system as a primary vehicle in helping people accommodate a new way of life. The net result has been quite a lot of experimentation here, which has led to the development of technology, curricula, and institutions that are unique. These are assets that can be marketed.

Our multicultural society provides another advantage for trade in general, because it gives us a marvellous springboard back into other countries. Studies in the United States have shown that one reason they fell behind in trade in

"What all the educational exporters may do in the future is work together in a cooperative or pre-competitive basis, to back each other up in developing international marketing strategies."

- Richard Allen



the 1980s was a lack of second language capacity among their business people.

Vistas: *Is the U.S. our main competitor in the educational market?*

Richard Allen: There's no doubt that the U.S. is a strong player--a lot of their material is used in our own systems. There's also the British Council in the United Kingdom, which has quite a large budget to search out educational trade opportunities. Then of course you have the international language links, the French in French-speaking parts of Africa and Asia, for example.

Vistas: *It's often said that while Ontario's educational exporters have a solid reputation for good products and services, their marketing efforts are relatively weak. What's your impression?*

Richard Allen: There are some companies which are excellent marketers, but most of the companies, although experts in their area, are relatively small. So it may be tough for them to cover the markets effectively. What all the educational exporters may do in the future is work together in a cooperative or pre-competitive basis, to back each other up in developing international marketing strategies. They could work out a consortium that has a common interest. For example, rather than have one software developer's rep in China and another in Europe, you could have them complementing each other in each market. There's clearly a lot

they can do to enhance their competitiveness.

Vistas: *Software developers are in the news a lot these days. How does our sector measure up?*

Richard Allen: Ontario and Canada have remarkable strength, and a significant part of that comes out of the University of Waterloo. They have spun off a number of companies that have become major players in their specific areas. It's an excellent example of how government can indirectly support new export industries.

Vistas: *What else can government do for this sector, in terms of exports? It seems to be on a threshold of development.*

Richard Allen: Waterloo demonstrates the point. If we don't have a first-class education system, a base from which to develop the software, we don't have an industry. The government's prime role is to keep that base healthy. Another thing we can do is to facilitate cooperation between the educational community and software developers. Our Telecommunications Strategy, where we're going to equip Ontario schools with the capability to utilize information technology, is a good example

We can also work with the sector to encourage it to develop a consortium. We would provide them with the vehicles to do that, and help them promote themselves to the world. My sense is that once you do those critical things, there's enough strength and depth there to carry them the distance.Δ

TECHNOLOGY-BASED TRAINING: CHALLENGES AND OPPORTUNITIES

By Anna Stahmer

Canada is not alone in taking a hard look at the skills of its labor force. There is hardly a country around that is not taking serious steps to improve the relevance, productivity, and output of its educational and training systems. The workplace training market is expanding rapidly, with corporate expenditures predicted to reach well over \$300 billion annually in Europe and North America alone. Technology-based Training (TBT) has a significant and growing share of that market.

Current spending patterns among Canadian companies indicate that the annual market for TBT will reach about \$600 million in the mid-1990s, and will continue to grow. This translates into four to five thousand jobs in the advanced technology field in Canada. Significant export sales are also expected, and some observers predict that export sales will be 10 to 20 times higher than domestic sales.

Although Canadian suppliers are currently a presence in the world TBT market, their future is less than certain. A recent study carried out for Industry, Science and Technology Canada demonstrates that suppliers of TBT are at a crossroads in terms of the world market.

Today's workplace training is carried out in-house by community colleges, equipment manufacturers and training consultants. The predominant methods of training are lectures and demonstrations, supported by video and print materials. However, corporate customers are realizing that they need new approaches to training, i.e. training that can be delivered in short modules, as -and when- an employee needs it.

Training technologies have proven that they can deliver "the learning goods" often in half the time of classroom training. The result is a reduction in the loss of productivity and absence from work. With these clear, bottom-line benefits, it isn't hard to see why the use of TBT in the workplace is expected to grow quickly, and may double every two years.

Workplace training uses a large range of technologies, software and commercial delivery systems. The key types of companies comprising this business sector are video and computer-based courseware producers, hardware manufacturers, producers of authoring systems and administrative software, and companies that deliver training and distribute materials.

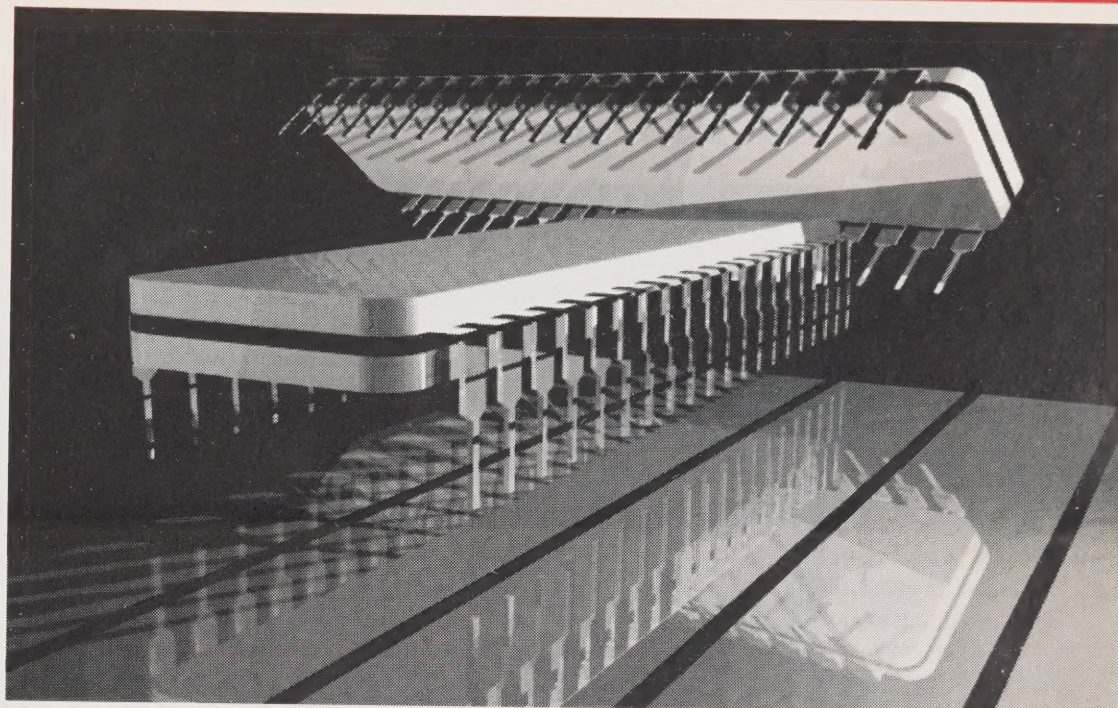
Distributors expect that their business is about to change radically, as physical distribution of materials will be replaced by electronic access. Materials will be more costly and complex, and marketing and sales staff will need to be very knowledgeable about their products.

The majority of the Canadian companies in the business are small. In order to handle large volume purchases and to have the human resources to work in the increasingly complex multi-media environments, they need to grow. Annual sales must reach well over \$1 million to support a healthy small company.

The over-riding obstacle to growth is weak demand. This is not because of doubts as to the effectiveness of training technologies, but rather because few of today's trainers are comfortable with using advanced technologies. Structural impediments, such as out-dated procurement methods, also play a role.

To stimulate demand, TBT suppliers have recommended a number of strategies, including:

- developing business justifications which demonstrate the effectiveness, flexibility, and cost behaviour of TBT applications
- user-driven demonstration projects
- "best-case" descriptions of TBT applications
- information services to assist customers in TBT choices
- targeted professional development to help trainers understand and use TBT
- recognition of excellence in the use of TBT through awards
- close attention to the needs and requirements of trainers when developing TBT.



Users of technology-based training are confronted with a range of products and services, and find it difficult to identify appropriate products of high quality. Suppliers see a strong need for a review process, which would examine factors such as the validity of a product's content and its instructional design. Since users are also looking for "portable skills" and learning that builds on previous modules, suppliers must co-operate with accrediting or qualifying organizations to develop modules that support a worker's career and learning path.

Another hurdle faced by TBT suppliers is the current financing and payment arrangements used in most corporate and government-sponsored programs. Based on compensation for traditional classroom teaching, training is reimbursed on the basis of time spent in training, and rarely on the basis of learning outcomes. Suppliers have suggested a review of current practices, along with the development of suitable procurement systems, which would put TBT on a level playing field.

International sales of TBT products and expertise can represent a sizeable market for suppliers. These sales also benefit Canadian customers, by establishing economies of scale and reducing domestic prices.

To support the growth of a viable industry that is internationally competitive, suppliers suggest new training procurement practices for the federal and provincial governments. TBT must be recognized as a viable industrial sector

which needs domestic purchases to grow beyond its present scope. It is feared that the absence of such recognition will result in foreign suppliers capturing the market, *including the Canadian market.*

TBT suppliers must overcome a number of challenges to respond to the growing world market for their products and services. The majority of the companies are small, which makes it difficult to handle (or obtain financing for) larger and multi-faceted product developments. Consequently, the development of strategic alliances with both established suppliers and other small companies (through joint ventures) is crucial.

Marketing is another area that is hampered by the small size of many of the companies. To acquire the know-how and resources for effective marketing, some suppliers are forging partnerships with established suppliers and companies with related products, in order to pool marketing resources. Others are focusing their activities on specific training sectors.

TBT materials are costly to develop, and front-end financing is difficult to find. Currently, R&D is limited, and usually carried out using in-house resources and through customized contracts. Again, co-operation is the key, as suppliers look for shared information on innovative financing, or new purchasing arrangements, such as combined purchases by groups of customers from similar

(see "Technology", page 14)

Interactive Image Technologies

SETTING SOFTWARE STANDARDS



The Electronics Workbench is economical and more effective than traditional learning methods.

The international success of Interactive Image Technologies Ltd. provides a clear example of how co-operation between government and the private sector can produce an export winner. In 1985, the Ontario Ministry of Education contracted with Interactive to produce a computer program to teach electronics in Ontario high schools. The result was Electronics Workbench, a program now sold in 20 countries.

"We just sent a shipment to the DeVry Institute of Technology in Chicago a couple of weeks ago," says Joseph Koenig, Interactive's president. "We've been selling internationally since 1990, but we've really stepped up our efforts in the past year and a half."

With customers like DeVry, a world leader in technical education, Interactive's Electronics Workbench has set the standard for electronics training. A quick look at the program is all it takes to see why. Students build and test electronic circuits using a computer mouse, instead of fumbling with circuit boards and tiny resistors. The result is a less-costly method of teaching electronics.

"It definitely saves time and money for the educators, but for the majority of users, the main feature is its ability to increase their students' motivation to learn," says Mr. Koenig.

Although half of Interactive's Electronics Workbench sales go to the United States, the program is available in Europe, Asia, Australia and Latin America, in 10 different languages. A new version of Electronics Workbench released

this September contains special new features requested by teachers.

"Electronics is a big market, because people need to understand what makes modern technology work," says Mr. Koenig. "And it's the same in any language or culture. In addition, most electronics people have access to computers. We want to step up our marketing efforts with this version to become the standard product for teaching, and eventually for low-level electronics engineering."

Toronto-based Interactive entered the general education market this year with Authority, "do-it-yourself" software that allows students as young as 10 years old to write their own interactive computer and multi-media programs. Both neophyte and experienced programmers use a mouse to produce their own educational software. Originally developed as an in-house tool for Interactive's programmers, Authority is already in wide use in Ontario schools and is now being introduced in the U.S. and Germany.

"Essentially, it's programming for non-programmers," says Mr. Koenig, "and there's a real need for software like this that's easy to use, yet sophisticated. It's being used in Scotland and Israel to develop course material for universities and colleges."

Interactive markets its software through dealers and distributors, and directly by advertising in industry magazines. The firm has also used direct mail in the U.S., and plans to

(see "Interactive, page 14)

SUSTAINABLE DEVELOPMENT THROUGH EDUCATION

A consultant with a long and impressive list of projects completed, The ARA Consulting Group practices in what are known as the social sectors of international development: public administration and finance, health and social services, urban and rural planning, housing, and tertiary and adult education.

"Our work in the educational and training sector is focused on post-secondary technical education and management training, especially in the public sector," notes Grant Sigsworth, ARA's director of international marketing.

"We provide project management and technical assistance that is applied directly to the client's needs."

ARA maintains a multi-disciplinary staff of about 60 in four Canadian and various overseas offices. Over the past 15 years, the company has

completed projects in more than 40 countries in Africa, Asia and the Pacific, the Caribbean and Latin America.

The Canada Training Awards Project (CTAP III) in the Leeward and Windward Islands (eastern Caribbean) offers a good example of ARA's work in the educational and training sector. The \$45 million CIDA project is designed to promote sustainable development through training and education in agriculture, small industry and services, tourism, and educational administration. Started in 1986, CTAP III runs until August 1995.

"It's one of CIDA's largest human resource development projects," says Mr. Sigsworth, "with an annual budget of more than \$6 million. The funding provides more than 1,700 training-years to complete certificate, diploma and degree courses in the four key sectors. And there are also short-term courses and seminars

for about 1,500 participants each year."

As Canadian executing agency on the CTAP III, ARA is responsible for the project's management, which includes establishing and staffing an office in Barbados, and maintaining statistical databases and financial management systems. The company is assisting the nine recipient governments in assessing their training needs, and in setting up and running training programs.

"The people being trained are adults from all levels of the workforce in the private and public sectors," says Mr. Sigsworth. "The

training is being done in the region and here in Canada."

Since the bulk of ARA's projects are carried out for either CIDA or IFIs (International Financing Institutions) such as the World

The \$45 million project promotes development through training in agriculture, small industry, tourism and educational administration.

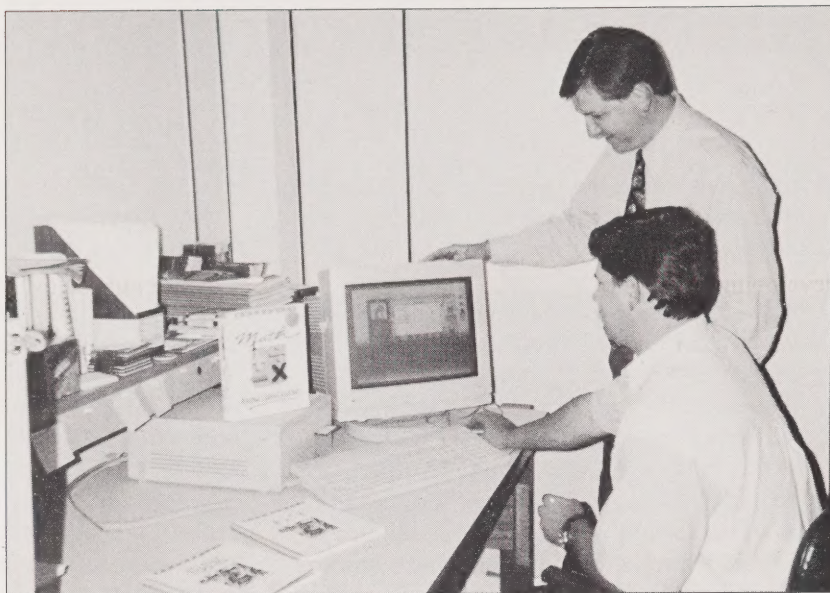
Bank, the company's export marketing strategy is different from most. With a long history of successful project management, ARA is often invited to bid on CIDA projects.

"Once you've established your reputation, you tend to get invited quite often," says Mr. Sigsworth. "We are usually short-listed on three to five projects a year."

ARA approaches IFI-funded projects on a case-by-case basis. Although this work can be targeted at several earlier stages in the project cycle, the firm usually concentrates its marketing energy on the implementation stage.

"The IFIs provide the funding, but the host government is the contract holder once the project is approved," notes Mr. Sigsworth. "We give considerable weight to countries where we already have a presence from past projects, so we can start the spade work early. And we often develop an association with a local consultant in the host country."Δ

TEACHING THE WORLD TO READ



Autoskill's CRS program is used around the world.

Strategic partnerships and business alliances are the key to export success for Autoskill International Inc., an Ottawa-based producer of educational software and learning systems. Already exporting a good deal of its products to the United States, Autoskill is developing new markets in the United Kingdom, Jamaica, Japan, and Mexico, and looking toward Asia for future opportunities.

The company's flagship product is CRS (Component Reading Subskills), a reading program based on extensive research into learning disabilities. That research has definitely been fruitful, with test results that show CRS to be four times as effective as conventional remedial reading instruction. A string of major education awards (including the prestigious U.S. Presidential Award for Outstanding Training Programs) have confirmed Autoskill as a world leader in educational software.

"The awards are important because they recognize the depth of our research," says Autoskill president Dr. Christina Fiedorowicz. "It's one of our great strengths, combined with the fact that our programs have been evaluated on-site. Our students' progress is much better than our competition's."

In addition to the CRS reading program, Autoskill offers a mathematics program and a

French version of the CRS program. The company learned early on that tailoring the software to a target market was a key factor in export success.

"We went to the United States early in the game," says Dr. Fiedorowicz. "Our first export sale was in Texas, and we realized then that each export market requires a complete review of the product. Even in the U.S., there are different accents and spellings and cultural differences."

This attention to detail has helped Autoskill sell its programs in Jamaica, South Africa and the U.K., but cracking foreign education markets calls for more than an award-winning product tailored to local needs. As Dr. Fiedorowicz emphasizes, strategic partnerships are crucial.

"We're in business to sell an education solution, and frequently we work with strategic partners who are aware of local needs," she notes. "We've had an eight-year partnership with Unisys, and we're an IBM business partner. We've got another arrangement coming up with Packard Bell. We view each as an independent business relationship, and open, clear communication is vital."

Autoskill also maintains an extensive local dealer network. Dealers are trained on the software in Ottawa before selling it in their local

(see "Autoskill", page 14)

OPENING DOORS WITH TOP-FLIGHT TEAMS

Ross Amerie's career path might serve as a model for recent trends in the world economy. Up to 1979, Dr. Amerie was president of several Canadian divisions of a large British machine tool manufacturer. It was there he saw the early signs of what is now an inexorable trend: the movement of labor-intensive industry to developing countries.

"We were selling our machine tools to be used for training purposes in Canada," says Dr. Amerie, "but we could see that the real market was in sales to countries beginning to industrialize. We weren't having a lot of success, and we realized that what was needed was a consulting group to educate our customers about the benefits of our products."

He established Canedcom International Limited with that purpose in mind in 1979. The Pickering and Scarborough, Ontario-based company has a three-pronged approach to technical assistance: feasibility and project studies are followed up by project management, and, when required, training and staff development services.

"We soon discovered that we could apply the concept of technical assistance to any industry, mainly with multi-lateral banks funding the projects, and we've worked in 30 countries," says Dr. Amerie. "But early on we took a look at the world and decided that Asia would be our major market. We also set up some criteria that would ensure that the company wouldn't get too big, to avoid the corporate bureaucracy."

By design, Canedcom hasn't grown too big, but it can handle major projects. The company maintains a computerized human resource data bank, which allows it to choose from over 500 international specialists for work on a particular project, and keeps overhead low.

"We never have more than 30 people at a time," says Dr. Amerie, "and we try to limit ourselves to two or three contracts. For the training component of projects, we work very closely with Canadian colleges and universities."

Canedcom's first project (funded by CIDA) was a report for Canadians on how to do business in Indonesia, and it continues to work extensively in that country. The company recently completed a study of Indonesia's technical education

system, and is currently researching the country's secondary education sector, which has 20 million students enrolled.

"Our initial study prompted them to change the direction of their policies, and that has led to an additional research project," says Dr. Amerie. "Eventually, it will lead to

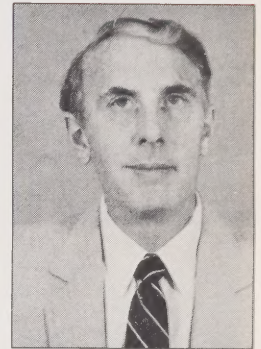
execution of the project."

Since Canedcom is often competing against government-backed organizations from Britain, Germany, and Australia, its flexibility and access to the best possible training and management resources have proven to be a major strength. After completing an organizational development study for the Kuwait Public Authority for Applied Education and Training in 1990, Canedcom was invited to submit a proposal for a computerized career development system for the Kuwait Oil Corporation.

"We looked all over the world for the best software in career development," says Dr. Amerie, "and found it in Mississauga at the Jamieson Williams Group. There was one hitch, though. Only the Macintosh version of the software was ready for a demonstration to the client."

Although Dr. Amerie and his associates were assured that Macintosh hardware would be available for their demonstration, they were in for a surprise on arrival in Kuwait. After a frantic search for Macintosh equipment (which cut into their allotted presentation time), Canedcom had an hour and a half to clinch the deal.

"The mood changed once they saw the software in action, and the credibility we had gained from working on the Kuwaiti education project," says Dr. Amerie. "We start operations on the project in October, with six people for about four months. It's a door opener to the largest organization in Kuwait."△



Ross Amerie's company maintains a personnel data bank.

CO-OP MARKETING BRINGS EXPORT RESULTS FOR COLLEGES

Even after years of international marketing experience, Ontario's community colleges didn't have their collective act together in the early 1980s. Instead of marketing Canada's expertise abroad, it was everyone for themselves.

"You'd be waiting to see someone in a foreign official's office, and one of your colleagues from another Ontario college would be walking out," says Wayne Monaghan, director of international education at Centennial College in Scarborough. "The spark came in 1988, when the Ontario colleges realized that most of them had some interest in export work, and they needed to operate co-operatively overseas."

That spark produced Ontario Colleges International (OCI), a co-operative marketing group which represents each of the province's 23 community colleges in all aspects of international education. The colleges are also supported by the Association of Canadian Community Colleges (ACCC), which set up its own international arm in 1978.

"ACCC runs a separate international program, and offers an international conference that draws a couple of thousand people each year," says Mr. Monaghan. "What we were looking for was a means of collaboration, and ways of marketing together. No single college has a lot of impact internationally, but a group that represents the province or country speaks with authority."

OCI members are heavily involved in contract training around the world, with more than 120 projects operating at last count. Although most contract training projects have in the past been funded through aid programs, Ontario's colleges are now taking a different approach.

"We are in essence running international projects like a private business," says Mr. Monaghan. "We are a provider of consultant and training services, and all of our projects are run on a cost-recovery basis, with overhead factors built in. One of the goals is to give our staff international experience, so we can introduce an international component to the curriculum, at no cost to Ontario."

College teachers work on foreign teaching contracts ranging from one week to three to five years, often under subcontract to Canadian private sector consultants. With the community colleges' emphasis on practical experience, contract teaching offers a cost-effective way of keeping instructors at the leading edge of their discipline. The foreign experience can also produce unforeseen benefits, as Mr. Monaghan explains.

"We have a marketing instructor here at Centennial who went to China to train marketing instructors," he says. "But since her Chinese students had been raised in a controlled economy, the usual marketing terms had absolutely no meaning for them. When she returned, her ability to teach marketing to Canadians was greatly enhanced."

Joint ventures with private sector exporters are the next frontier for Ontario's colleges. With a growing number of export sales being made as turn-key operations, technology transfer is becoming an extra that many export customers demand.

"Suppose an Ontario engineering or design company has put together a package deal for an airport," says Mr. Monaghan. "We would first work with the designers to determine the training needs for the project, and then offer training on everything from air traffic control to retail marketing. Our training is a value-added component of the Ontario company's bid, and the export client has the option of buying training as part of the package. It helps create economic opportunities for Canadian companies, and provides benefits for our college staff."

Centennial College, Sheridan College in Oakville, and Merlin Scientific in Georgetown recently formed a partnership to market training and equipment as a package for export. A manufacturer of teaching equipment for physics, chemistry, and technology education training simulators, Merlin's has produced a small computer numeric controlled (CNC) milling machine linked to a personal computer. Students



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er/college package.

use the computer to complete a Computer Assisted Design, then manufacture the product right on the desktop.

"There's a desperate need for that kind of simulation overseas," says Mr. Monaghan, "and we will help Merlin capture some of that market. The two colleges will be involved in installation and the training of teachers, and industry-based training. We're creating an environment where a Canadian product is being marketed internationally, for education purposes."

Centennial and five other Toronto-area colleges have formed another group with a private sector partner to provide training on a labor market adjustment project in Egypt. Ontario college instructors will train faculty in Egypt, to deliver a demonstration program for unemployed university graduates in mechanical engineering, food processing, and accounting. The training will make the students employable.

"It's an upgrading program," says Mr. Monaghan. "For example, they'll take a mechanical engineer who was trained before CNC was included in the course, and give him the skills to make him a CNC production manager in six months. It's a pilot project, and if it works, we expect to contract for six

regional training centres, each assisted by a Canadian college on a twinning basis."

OCI's list of activities makes it obvious that today's international education departments do a lot more than recruit international students. But as Mr. Monaghan points out, international students are an integral part of the colleges' marketing efforts.

"There are between five and eight thousand international students in Ontario colleges each year, and they're paying full fees of about \$8,000 a year and \$10-15,000 in living expenses," he notes. "That's a major input of foreign capital into the economy. And when they return home they become economic ambassadors for Canada, familiar with Canadian products and services. We often get requests for information about products they've used here in training."

Ontario's community colleges have definitely gotten their collective act together in the early 1990s, becoming a vital component of the province's growing export community. They are also offering more and more training for business people interested in the international market. Demand for the International Business Diploma programs offered at three Toronto area colleges sums it up.

"There's no need to advertise those programs," says Wayne Monaghan. "They're always full."Δ

A SCHOOL IN A BOX



Pathfinder's Jean-Marc Kwongchip trains staff at New Zealand's Southland Polytechnic.

"My life is taking a whole new direction." That's one of the many positive reactions from students who have used the Pathfinder Learning System (or its francophone equivalent) to complete high school equivalency, upgrade basic skills, or learn specific job skills.

Developed as part of the Youth Employment Skills (Y.E.S. Canada) program beginning in 1987, Pathfinder is a computer-managed learning system that allows students to complete a specified curriculum at their own pace. While students still read books, write essays, and take tests in the traditional manner, their progress is recorded by Pathfinder's sophisticated management system.

As students master a particular section of a course (80 per cent or better on a test), the computer program prompts them to move on to the next section of the course. Students spend about 25 per cent of their time working on the computer, with the balance spent working independently on assignments or directly with the teacher. And instead of constantly monitoring students' progress and compiling long lists of marks, teachers are free to do what they're paid for: teach.

"Some people call it 'a school in box'," laughs Celia Richardson, a trainer at Pathfinder Learning Systems Corporation in Toronto. "What it is really is management software, a learning management system that guides each student through a curriculum at their own pace, and keeps track of their progress."

A Pathfinder high school lab typically comprises the management system (running on networked PCs) and about 2,000 educational resources: textbooks, work kits, audio and video cassettes, CD-ROM courses and instructional software. Business can use the management system to train workers in new technology, health and safety issues, and skills upgrading. Since each system can be customized to manage the learning of any "outcome-based" subject and curriculum, Pathfinder is definitely exportable.

Ms. Richardson recently returned from Invercargill, New Zealand, where she and Pathfinder colleague Jean-Marc Kwongchip trained staff on a new system at Southland Polytechnic. Similar to a Canadian community college, Southland is using Pathfinder to serve a youth and adult student population.

"They're using it in conjunction with existing programs," says Ms. Richardson, who spent two weeks training Southland staff. "Sites like Southland really demonstrate Pathfinder's flexibility."

The New Zealand college had been seeking a technological tool to manage the learning process, and found it in Canada, according to Southland Polytechnic's Dave Kerr.

"It has the flexibility to allow us to adapt it to suit our own learning environment, and change the resources and assessment to suit our own curriculum requirements," says Mr. Kerr.

Originally a division of Y.E.S. Canada, Pathfinder became an independent, employee-owned company in May, 1991. Company president Harry Seymour is bullish on Pathfinder's export prospects.

"Our market is anywhere English or French is spoken, so we think our export potential is tremendous," says Mr. Seymour. "We're currently exporting to the U.S., and there's growing recognition of our product south of the border."

Although the company already has 10 systems in place in the U.S. (at vocational/technical schools, high schools, and detention centres from Washington state to Washington, D.C.) a recent surge in interest has prompted Pathfinder to set up an American corporation to handle U.S. sales.

"The time was right for U.S. incorporation," says Mr. Seymour. "It's not legally necessary, but

(See "Pathfinder", page 14)

BROADCAST QUALITY

Who is the largest foreign supplier of curriculum programs to the U.S. instructional broadcast market? The U.K.? Canada, perhaps? The answer lies much closer to home, at the Ontario Educational Communications Authority, or TVO, as it is known around the world. Quality counts in the educational television industry, and TVO's award-winning programs counted more than \$4 million in export sales last year.

"We simply have the best quality educational programming in the world," says Susan Nobel, TVO's manager of Canadian and International Sales. "TVO started in 1970, and we've developed a lot of specialized expertise in curriculum development over 23 years."

That expertise is marketed across Canada and throughout the U.S. TVO maintains a U.S. catalog of more than 1,500 titles to support all levels and areas of curriculum, and produces teacher's guides for most of its series. Programs are sold either through broadcast rights to instructional organizations, or by video cassette through national distributors. A sales office in North Carolina manages sales of educational programs and print materials for all 50 states.

But North America isn't the extent of the broadcaster's market. TVO licenses its programs to more than 90 countries, to public broadcasters, educational institutions, satellite and cable companies, and private business. New programs and the repackaging of older series promise to extend TVO's reach.

"Our ESL (English as a Second Language) programming has good sales potential around the world," says Ms. Nobel. "And we're looking at 'versioning' some of our children's programming, to sell it in non-English speaking markets."

Ms. Nobel says that Latin America looks particularly promising for TVO's general broadcast and ESL programming. Educational videos with strong visuals (such as Concepts in Science) have been licensed to Brazil, and another deal is pending. With its large English-speaking population, India is a target market for

virtually all of TVO's programming.

A new TVO production with excellent international sales possibilities is Bits & Bytes 2, a new version of a wildly popular computer education series produced in the 1980s.

"We had 10,000 home learners signed up for the first broadcast of the Bits & Bytes series," says Ms. Nobel. "The new series is right up to date in terms of teaching software and systems that are in use around the world."

TVO also maintains active business

relationships with broadcasters and educators around the world. Numerous co-production deals carried out with foreign broadcasters have allowed TVO to extend its domestic production dollar two or three-fold. Bill Roberts, senior director general of TVO's international

affairs department, points

to a number of co-production deals which have allowed TVO to produce more programming on a limited budget.

"We've had a concerted Asia-Pacific strategy for the past couple of years," says Mr. Roberts. "It's based on our long relationship with NHK in Japan. We're also members of the Pacific Rim Co-Production Consortium."

TVO's work with Pacific Rim broadcasters has led to sales and a possible co-production deal in Korea, and additional business in Singapore. TVO is also investigating opportunities in China, and is especially interested in Ontario's twinning relationship with Jiangsu province.

"Right now, our strongest international presence is in Europe," says Mr. Roberts. "We have a strong relationship with France because of co-productions, and we're active in Public Broadcasters International--the U.N. of public broadcasting. It represents significant business opportunities for us."

Does quality programming **always** sell? TVO has one co-production deal that it is particularly proud of: the co-production partner bought TVO's version of the program for resale, rather than use its own version.Δ



Technology... (from page 5)

sectors.

Although many of these initiatives will require leadership from the suppliers themselves, the fact remains that most have limited staff, and are already stretching their resources to the maximum. Thus, some financial support from government will be needed to nurture the TBT supplier industry.

As Canadian suppliers achieve financial stability, any continued support should come from other sources, including self-financing by suppliers and services supplied to customers. Should the initiatives fail to produce a healthy and growing Technology-based Training supplier sector, they should be reviewed.Δ

This article is adapted from Suppliers of Technology-based Workplace Training: Challenges and Opportunities, a report prepared for Industry, Science and Technology Canada by Anna Stahmer.

A member of OIC's Board of Directors, Anna Stahmer is principal of Stahmer & Associates, an international management consulting firm specializing in the use of communications and information technologies for education and training. She is also the publisher of The Training Technology Monitor, a newsletter (first issue Sept. 1993) designed to help close the gap between the training community and suppliers of training technologies.

Interactive... (from page 6)

increase advertising with the release of the new version of Electronics Workbench. With its broader appeal, Authority may eventually be sold retail.

Interactive currently exports about 85 per cent of its software and employs 20 people in its Toronto operation, half of whom are software engineers.

"Those jobs were created because of a decision that the government made years ago," says Mr. Koenig. "It would have been hard to develop Electronics Workbench without that initial government license agreement for Ontario. And having the program in use in Ontario schools is like a seal of approval. It's a tremendous inducement for other jurisdictions to buy when a product is showcased at home."Δ

Autoskill... (from page 8)

market. Autoskill staff visit them before they begin marketing the software, to ensure adherence to company standards and procedures.

"We feel that local representation is very important," says Dr. Fiedorowicz, "and we're focusing our energy on that. We're developing a separate marketing training for our dealers."

Although the U.S. is the company's leading export market, the future promises a large international market offshore. Autoskill is now working on a separate program for the burgeoning ESL (English as a Second Language) market, which looks particularly promising in the Far Eastern market.

"We're using the same research-oriented approach on the ESL project," says Dr. Fiedorowicz, "and it will use techniques that haven't been seen before. It's technically and theoretically complementary to our CRS program, but it can also be used as a stand-alone program."

The first stage of the ESL program will be launched early in 1994. Autoskill also has pilot projects for its reading and math programs underway in Japan and Mexico. Agents are being trained, and the English language versions are being fine-tuned to reflect local cultures.

"We're also developing a Spanish-language version of our reading program," says Dr. Fiedorowicz. "It's another big market."Δ

Pathfinder... (from page 12)

it helps in order to be recognized there. There's a great deal of interest in us now, as opposed to six months ago."

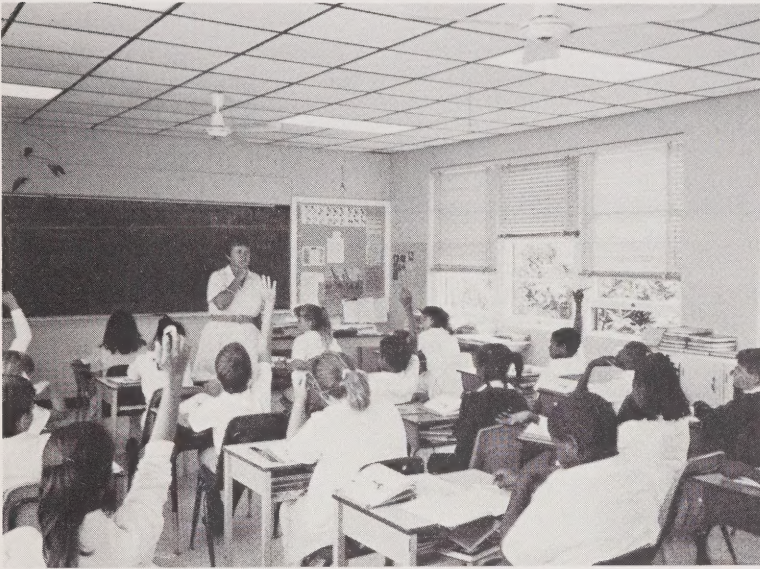
The U.S. market offers tremendous potential for the company. A vocational/technical school in Washington state recently purchased a system with which it intends to reference many of its 200 outcome-based courses. The first course--auto body repair--should be ready for use this fall.

Pathfinder has stepped up its marketing program recently, expanding its targeted mailing list from 2,000 to 15,000 names with the help of summer students. And efforts in Australia are starting to show promise.

"Around here we're trying to think in terms of the globe," says Mr. Seymour. "There are certain things a student learns wherever they're educated, and our system can help them. At this point we don't have a large following in that sense, but we're attracting new converts every week."Δ

Exemplary Consultants

A WORKING MODEL



Exemplary's Bermuda project has become a paradigm in education consulting.

A body of education consulting work that's known as the "Bermuda model of education renewal" is proving to be an exportable entity which can be transferred to other countries. Stewart Toll, president of Exemplary Consultants (London) Ltd., credits his company's work in Bermuda with continued export interest and sales.

"We've been assisting the Bermuda government with a complete overhaul of their education system, from kindergarten to the end of secondary school," says Mr. Toll. "We've helped them add a year to the system and introduced middle schools. We developed a program for principals and senior department staff, trained special education teachers, and introduced a mentor program."

Exemplary was formed in 1987, when Mr. Toll, former Director of Education for the Middlesex County Board of Education, won a contract as primary consultant to advise on the restructuring of Bermuda's public education system. Bermuda's first step had been to meet with a broad cross-section of the Bermudian community, a process which produced over 200 recommendations for education reform.

"We were breaking new ground with this implementation study," says Mr. Toll. "There were very few places we could turn to for examples. Ontario had been restructuring itself

section by section over the years, but nowhere near the magnitude of looking at the renewal of an entire education system."

The experience gained in Bermuda has served the company well. Exemplary personnel are closely involved in the implementation of the strategic plan, staff and curriculum development, and design advisory services for school conversions and new construction.

The company's roster of services now includes professional development programs for principals and teachers, curriculum development, facility needs analysis, design briefs for construction, and general advisory services to ministries of education. Associates have experience in Africa, the U.K., the U.S., the Caribbean and Europe.

One aspect of the Bermuda project, a new developmental supervision program for principals, is being particularly well-received in other countries.

"That program has been a real winner for us," says Mr. Toll. "There's been tremendous interest in the program in the Caribbean: Barbados, the Cayman Islands and the Eastern Caribbean States. The University of the West Indies is looking at it as a possible training model to use with teacher training programs."

Exemplary works closely with CIDA and OIC to identify new business, and uses a half-hour video on the Bermuda project as a marketing tool. OIC's Incoming Buyers' Program has also proved effective in demonstrating the depth of educational expertise available in the province.

Exemplary has follow-up visits to Costa Rica, Barbados, Jamaica and the Cayman Islands planned for the fall, and the company is awaiting word on three pending projects in Mexico. Word of the Bermuda model has been spread as far afield as Latvia after a Bermuda parent made a presentation on the restructuring program there last June.

"We started to concentrate on the world market about a year ago," says Mr. Toll. "It takes about a year and a half to two years before you feel you're getting close. Based on the interest shown in Latvia, we've decided to send a representative to eastern and central Europe this fall."△

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ONTARIO
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Ontario Science Centre

SCIENCE CENTRE DELIVERS TURN-KEY EXHIBITS

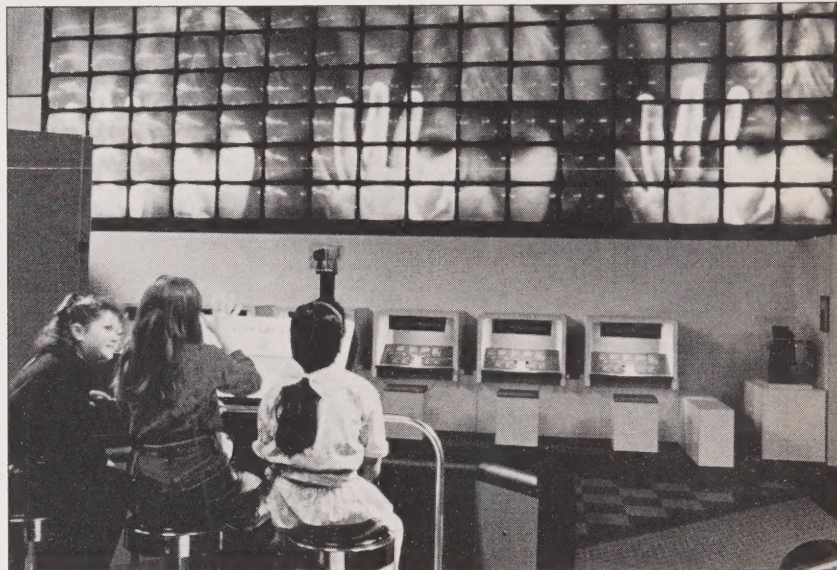
The Ontario Science Centre's export initiative began 13 years ago, with an Outreach Program designed to bring science programs to areas outside Metro Toronto. When the travelling show eventually moved outside Canada and requests for it began pouring in, the centre realized it had something the world wanted to see.

"It started on a cost-recovery basis, but we soon realized it could be profitable," says the OSC's director of International Marketing, Joann Bennett. "Our gross sales have been in the \$2 million range the last few years."

An international leader in producing interactive exhibits, the Science Centre markets a broad range of services to museums around the world. Major projects have been completed in China, Japan, England, Malaysia, and across North America. Mindworks, a series of exhibits created in cooperation with the American Psychological Association, opened at the Smithsonian Institution in Washington last year.

A \$1.5 million contract signed last year with the Metropolitan Municipality of Ankara is the Centre's largest contract to date, and demonstrates its ability to deliver a turn-key project. Secured with the assistance of the Canadian Commercial Corporation, the contract gave Science Centre staff just 10 months to deliver on-site training programs and 6,000 sq.ft. of exhibits known as Science Circus.

"Representatives from Turkey visited a lot of science centres, and ours is considered in the world's top 10," says Ms. Bennett. "But we're unique, in that we offer exhibits and training programs, a turn-key operation."



The contract with Turkey, which has generated more than 11 person-years of employment at OSC, included on-site management, hosting, installation, and technical training for the 40 Turkish staff who operate and manage the science centre.

For two weeks prior to the opening of the new centre, OSC's team of trainers worked closely with Turkish staff to develop their hosting and demonstration techniques. Staff also learned about the science behind each demonstration and safety procedures. After the new science centre's opening last April, training was completed by providing management with standards for staff evaluations.

The Feza Gursey Science Centre is part of Altinpark, a new recreational complex which includes a convention centre and hotel, theatre, and children's cultural centre. The science centre is expecting more than 100,000 visitors in its first year.

"Mexico is another market we're interested in right now," says Ms. Bennett. "We've produced a number of exhibits for a children's museum in Mexico City, and for a university there."

Revenues from the Ontario Science Centre's export sales help support its long-standing tradition of excellence in science exhibits here in Ontario. Over the past three years, the centre has been working on a major renewal of its exhibit halls. Δ